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FOREST ARBORETA.*

BY MR. CHARLES M. DOW.

I am to have the privilege of talking to you about forest arboreta. I shall extend that privilege somewhat, and talk a little about forests and forestry as well.

A practical man would satisfy himself as to the reasons for doing a thing before he considered the method for doing it. Before we take up the question of the method of establishing a forest arboretum, let us first see whether such an object lesson in forest planting is necessary or desirable.

A lecturer in the science of medicine would not be likely to impress or properly instruct his students, did he talk glowingly about the hospitals, but omit all reference to the patients themselves. And I think we would all be disappointed, if we attended a lecture on scientific farming and listened to a lengthy dissertation on hoes and plows, and rakes and fertilizers—and heard not a single word about seeds and crop yields, and how to harvest them.

It is the same with forestry. Before a man talks about an arboretum, or about sylviculture, or forest management, or forest utilization, or before he advises others to practice them, he should be wholly sure in his own mind that all these things are wise and necessary and wholly practicable. I want to make this point very clear—the need for being sure about the justification and the need for doing the thing before we talk about the method of doing it.

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* Address given at the meeting of the New York State Foresters' association, held in New York, January 24, 1914.

Mr. Dow is superintendent of Letchworth park and his work has attracted so much attention that he is frequently in demand as a speaker on forestry.

Suppose a man, a wise man, thinks of building a house—does he go right to employing an architect and buying brick and lumber, and hiring men, or does he go straight and hunt up a reliable contractor? I think the wise man first says to himself: "Can I afford to build this house? What can I spend on it? What are our needs for rooms? When is the best time to begin?" And then and only then he begins to think about how to build.

Or think of the artist with his camp stool and his easel, who faces some wide sweep of coast and sea, or mountains wreathed in clouds, or a similar and more intimate bit of Nature's handiwork—a babbling mountain stream perhaps, or a patch of wild flowers in the foreground and blue mountains in the distance. Does the artist set right in to mixing his paints and sketching in the picture? First he asks himself: "Is there a picture there? Does it compose? Does it tell a faithful story as true pictures do?"

I am not a professional forester in the technical sense, but a business man who has dealt in private and some public affairs, an American citizen, and therefore deeply interested in the forest and its welfare. I did not become enthusiastic over forest arboreta in general and over one forest arboretum in particular until came to realize that such object lessons were greatly needed to help bring this whole great principle of practical forestry into effect.

First, however, I had to convince myself that practical forestry was needed in America. I looked about me, and I travelled. I travelled somewhat widely. And the more I looked, the more I saw—apart from all matters of statistics—that wherever trees are, men follow. And I saw that these men, this army of loggers, which contains no fewer numbers than the army of the United States, is busy everywhere. For the loggers are busy in the resinous snow-laden north woods and in the forests of the Lake states. They are busy in the Rocky Mountains from Montana to Arizona, among the Lodgepole and the Western yellow pine. They are busy among the great red fir and cedar and sugar pine of the Pacific forests. And the size of this army of loggers grows steadily with the years.

So different are the conditions under which the loggers work, that some of them have to wear the warmest clothes to be had as a protection against the northern cold. Others work stripped to the waist in the southern pine woods. Others again, are clad

in homespun, and crack long whips over the slow-moving oxen, as they snake the big logs of oak and chestnut and poplar out of the rich coves of the Blue Ridge. It is a varied army of loggers, facing many different conditions in this great country of ours. French-Canadians, Americans, Irishmen, Scotchmen, negroes, Indians, mountaineers and plainsmen, go to make it up; and the army is fighting forests quite effectively. And you will readily realize that the lumber cut in one year in the United States would make a row of wooden houses more than ten thousand miles long, or about the same distance as the mail route from New York to Hong Kong.

But, while lumbering is interesting and even picturesque to watch, while it is varied in its methods, ranging from steam skidders to the aerial tramways, to the logging railroads, and to river driving, and while each method has its elements of interest; still, the thing which counts most is not just how the loggers do their work but what results they leave behind.

I hold no brief against the lumbermen. They have been pioneers in industry. They have added greatly by their initiative, their abilities, and their remarkably skilful methods in turning forests into lumber and lumber into money, in the material development of these United States. But in the woods work they have done, their last thought as a rule has been the safety and perpetuation of the forest. The result has been to devastate some one hundred million acres of forest land in America. This land has been stripped so clean by careless use of the axe and the saw and the following fires, that trees must be planted by hand upon this vast area to bring back a commercial forest upon it, and thus to restore it to productive use.

We do not need to go far from home to see this waste. We have it at our doors, right in the Adriondacks. Some one has made the forceful statement that forestry is practical in the Adriondacks everywhere except right in the woods. I realize that here and there Adriondack forest owners have turned their thoughts to thrift., But on the whole the Adriondack forests are not being perpetuated or improved by careful utilization, but are being destroyed by reckless use.

This matter you all understand so well, it seems to me a matter not merely of science and theory and technique, but a matter of the common variety of common sense. As you are possibly

aware, I am a banker, somewhat interested in lumbering and farming. Bankers get into the habit of dealing not much in glittering generalities as in contrasting concrete cases with tangible results—things so concrete and tangible, for example, as capital and interest.

Let us apply the same wholesome standard and measure to this question of forestry. I hardly need to argue, at least not here, that forests are essential to all human welfare. Next to our need of food, comes our need of timber. And forests not only yield timber but they yield water as well; water for domestic use, for power, for irrigation, for every useful purpose known to man. Not only do forests render these two great services to mankinfd but they harbor game, they make the world beautiful, and they upbuild, as all history drives home the fibre, health and happiness of all human beings.

So I think that we may fairly assume that forests are needed. Now if they are needed, what is the common sense in utterly destroying them, or partly destroying them, or reducing their yield, and consequently reducing their usefulness to men? I am inclined to think that part of the reason why forestry is adopted so slowly by private owners in America, part of the reason why forestry is still looked upon by many as an obtruse science, is that it is not yet generally understood that forestry is the further application to the woods of the great basic principle of agriculture. The principle of so raising and tending crops and so husbanding the land, as to keep the land productive for all time.

I do not need to delve into statistics. You know how this nation stands, with respect to her forests. The forest is capital. The yearly growth is the interest thereon. That growth can be measured and taken just as can the interest from capital invested as money instead of as trees. This nation, as you are aware, has thrown away all considerations of the safety of the capital, and is rapidly spending both interest and forest capital about three times as fast as the forests grow. Our yearly use of wood in the United States is about three times as fast as wood is being produced in all our forests.

Such a procedure would not work in banks. I hardly need to tell you that it does not work well for a nation which will need wood and timber, and running streams, and all industries dependent upon the forest so long as the nation stands.

Where is the remedy for this wastefulness? For this obliviousness to the future? For this feverish appetite for wood, about twenty times as great per capita as that of the great nations of Europe. Where lies the remedy for this—what shall I say—for this somewhat perverted, artificially stimulated appetite? What are the methods under which our forests may be made not only storehourses, but factories of wood? Three great forces must work together to save our forests—the nation, the states and individual citizens. No one force can in time accomplish adequate results in forest conservation.

Assuming effective co-operation between these three great forces, these are the things Americans need to do: First, to protect all forests from fire. That is the fundamental thing. The first duty of any man to whom is entrusted the funds of other men is to see to it that they are made safe, so far as safety is humanly possible. Our first duty towards the forests is precisely the same duty. To make them safe not only from destructive logging, but first of all, to make them safe from their arch-enemy—fire. Once that is done, once that great step is fully taken by co-operation between the states and the individual land owners—the nation already has its rangers in the national forests to man the fire lines—once that essential step is taken, the next step is right methods of forest management. I hold the conviction that foresters have kept this matter of forest management, this matter of practical sylviculture which is what your forest management really is, a little too guarded from the public mind. For though he be a layman, as soon as a man conceives the basic idea of what sylviculture means, then if he be reasonable he can no longer oppose its application or fail to appreciate its obvious benefits.

To me, one of the most inspiring phases of forestry is the way in which the forester acquaints himself with the complex and many-sided life of that city of trees, which is what the forest really is. The way in which he looks upon the trees, a good deal as masters of men must look upon the people whose energies they direct. The way in which he studies the fighting qualities of the trees, which is what the sylvicultural characteristics really are, and so designs his forest methods, so fixes diameter limits of cutting, so provides for protection of young growth, so reduces lumbering to a careful, culling process, that the whole struggle

for existence in the forest is directed and guided to useful and productive ends.

I trust I am not a fanatic on the subject of Forest Aboreta. Perhaps I realize no less clearly than you do, that forest conservation in America depends chiefly upon reproduction from self-sown seed, following careful and conservative cuttings. But I also realize that before our National Forest problem is adequately solved, before we have put to use, and to the best use, every acre of land in America—and we shall not stop our efforts until then—that we must undertake and carry out a national task in forest planting, which is vaster than the same task which any other nation has ever faced.

In regard to tree planting, the United States naturally falls into three regions—the Eastern, the Central and the Western. The Eastern region is that one which lies east of the great prairie states. In it is a vast aggregate of denuded lands suitable only for forest growth on which as the result of repeated fires following logging, natural reproduction has not and probably will not take place. Cut-over and burned-over lands in urgent need of forest planting in the Atlantic region, and in the northern portion of the northern states, alone aggregate over three and one-half million acres.

Then there is the great area of abandoned farm lands, mainly in New England and in the southern mountains; and then there are the wood lots rendered unproductive by missue. on which planting is essential to bring back the forest crop.

The Central region comprises the prairie country. Tree planting is urgently needed there to protect crops from wind, to grow timber for ordinary farm purposes in a mainly treeless country. In the far west the planting problem is mainly federal and on it a good beginning has been made.

To sum up, without going too deeply into the dry realms of figures and statistics, we have planted in the United States just about one acre in every ten thousand acres thus neglecting our duty to ourselves and those who follow us, to plant forest trees.

There is the task. Now what is needed for its accomplishment? As I see it, these are the main things: A much more wide and more definite knowledge on the part of the landholding citizens of the returns and profits which follows tothose who plant forest trees. Mention tree planting to the average man, and what is his response?

"Plant trees," he says—"Why I can't wait that long for my returns! Tree planting is all very well for states and govern; ments but I am merely a man with a little span of life ahead of me. When I invest I must at least live long enough to harvest the crop."

You see that such men are apt to think not in terms of white pine, which, as you are aware, will yield box boards in something less than 30 years, or in terms of the quick-growing hardwoods which yield fence posts in eight or ten years and firwood in maybe ten more, and lumber in perhaps 30 or 40 years. Most men are apt to think of the results of tree planting in terms of long lived, slow growing oaks, which take perhaps a century to grow 12 inches through. To make the fact plain to such men, not only about money returns from tree planting but about how soon these returns can be had, is an urgent task before all foresters.

Now the next task. That is to get tree planting done so well that disappointment will not be the crop instead of posts or lumber or firewood. Successful tree planting is a wholly practicable thing. The Germans have demonstrated that fact for well over two centuries; and of course being foresters, you are well aware of the fact that today one-third of the reproduction in German forests is from planted trees.

But we do not need to go to Germany. Go to Baltimore, North Carolina, to the estate of George W. Vanderbilt. You will see forest plantations there, growing on steep hills which 20 years ago were bare and red and gullied by erosion and which today are already yielding useful products. If you do not care to go so far, why then travel in your own state here at home, and see the admirable results already obtained by planting good forest stock from the splendid state nurseries.

Successful tree planting is a practical thing; so is successful farming; but there are farmers who fail. Now what is needed in order to insure as low a precentage of failure as possible among tree planters? My impression is that object lessons are needed more than anywhere else. One can not learn how to be a forester from books alone. I will affirm with equal vigor that one can not learn how to be a banker from books; and possibly we will agree that men can not learn how to do good tree-planting wholly from books. They need to see the thing in operation. Of course the obvious answer is, as I have just stated, that successful planta-

tions are to be seen in New York state and elsewhere in America.

But, can you conjure up a life-sized picture of an up-state farmer, a thrifty, cautious farmer, travelling east and west and north and south, and spending largely of his means to see plantations which contain the trees he wants or the trees which he should or might or could consider setting out on his worn-out lands, or in his woodlot, or elsewhere where trees are needed on his farm?

You might say: "Why are forest arboreta needed? There are a great many arboreta which contain practically every kind of useful tree. Let the prospective tree planter inspect those.

There are such arboreta at Harvard, and elsewhere. Deep and undying credit and honor is due to Dr. Sargent and the other eminent gentlemen who established them. They serve a most valuable purpose to landscape architects, to foresters, to land owners and to all classes of men who wish to study the habit and behavior of individual trees, but they are not planted in forest conditions.

I have made some study of arboreta around and about the world. I think I may say I have seen with some degree of thoroughness nearly all the great tree arboreta of the world, both in America and foreign lands. I do not need to recount to you who are foresters the wonderful living museum of trees in the Arnold abroetum nor do I need to describe the great arboretum in Kew Gardens, near London, where many foresters have worked, including possibly some of yourselves; nor do I need to describe the great arboreta in semi-tropical countries, as in Ceylon on the Island of Java, or which are in the making in several other foreign lands.

I am thankful as an American citizen for the Arnold arboretum and for all such wonderful and useful evidences of the great ability and devotion of scientific men. In promoting, as we have done, the establishment of forest arboretum at Letchworth Park I feel we are simply carrying the arboretum idea to a further progressive development. For I am convinced we should have here in America, not only tree arboreta, but a forest arboretum—not only one, but many.

My old friend, William Pryor Letchworth, a man of character and of great service to mankind, spent his leisure moments throughout a long and busy life in beautifying and developing his estate upon the banks of the Genesee river near Portage, about 60 miles from Buffalo. In the twilight of his life, Mr. Letchworth felt more

and more the need for forest conservation. And through his wide vision and his great generosity, he left Letchworth Park to the people of New York as a public park; and he left a very definite request that it should be used, so far as practicable, for purposes of useful and educational afforestation, and he also left the means for its accomplishment.

I shall always remember my talks with Mr. Letchworth on this subject. And it was with a vigor inspired both by my friendship for him and by my contempt of the great needs of such an object lesson in tree planting as the custodians, The American Scenic and Historic Preservation society, are now establishing at Letchworth Park, that I have devoted all the time I could to the development both of the forest arboretum idea and of the work itself upon the ground.

Our purpose is to develop the forest arboretum at Letchworth Park deliberately—forest arboreta do not spring up like mushrooms over night--and in doing so establish a great object lesson for this region, illustrating the results of forest planting. We wish to see established at Letchworth Park—and a small but satisfactory beginning has already been made—blocks of planted forests seldom left less than an acre in extent, and each containing a useful tree or a useful combination of trees which will grow in that vicinity. We want foresters, farmers, landscape gardeners and tree planters, present or prospective, to go to Letchworth park, to walk among these planted blocks of forests, to make a right selection for their uses; and then to go home and plant forest trees themselves.

At the inception of the movement the principle upon which the Letchworth arboretum was to be established and certain plans for carrying out the principle were adopted by the Custodian society. This principle and these plans are in part as follows:

"The principle upon which the Letchworth arboretum be established is that it shall consist of a permanent collection of the various species of the world's timber trees likely to thrive in this northern climate, planted scientifically to test their value and illustrate their processes of development, thus supplying not only knowledge for knowledge's sake, but also knowledge for practical use.

In carrying out that principle we will have a collection of the valuable timber trees of the world and the Letchworth arboretum

will become the first of its kind, and its contribution to the cause of forest conservation in the United States will be of great economic and scientific value.

After the arboretum has been established, planted singly and in groups will be every important tree species with which experiment under local conditions of soil and climate will justify, and visitors will thus have ample opportunity to study the value of trees of many kinds for ornamental planting, but the object lessons of enormous economic significance which will lie spread before their eyes will be blocks of planted forest in each of which has been set out one or more kinds of trees of commercial importance

By this course Letchworth Park will aid materially in laying an exact scientific basis for the successful extension of practical forestry in the United States. Every practical step will be taken, not only to insure results of the highest scientific value from forest work at Letchworth Park, but also to develop its usefulness as an object lesson to all park visitors."

I wish with all my heart that this object lesson were in its full fruition. But I do not need to say to foresters that forest trees grow slowly not fast. So possibly after five years, certainly in ten, the Letchworth Forest arboretum will have some useful forest lessons to teach; for by that time the little trees will be up in forest formation.

In the meantime we are making experiments with different species; and we are doing some things which will, and which will not, and which perhaps, may work! All men must do such things who would find out new and useful facts for the uses of other men.

I am hopeful that the Letchworth forest arboretum will be only a beginning. I wish to see such forest arboreta established in other regions of the United States; one for example, in the southeast, in the region of the southern pines; others in the Rocky mountains; others on the Pacific coast; and above all in the far southwest where trees are needed more than anywhere else in all America.

This then, is the central idea in the forest arboretum at Letchworth Park—to help so far as it can tree planters and therefore foresters to bring back trees successfully upon land where trees only can be profitably grown.

Just a word in closing this whole matter of forestry. I believe

that there are in America no more useful citizens than foresters. I think there are no higher types of American citizenship than exemplified by great foresters. I see for the work, unless my vision is all wrong, a great and growing and a most productive future. Upon your zeal, upon your training, and upon your experience and that of other foresters, depends more than anything else the future of the forests of America. From the far-flung national forests, set among the great mountain ranges of the west, to the wood-lots and the timber tracts right here at home, lies your work. I hope that the future of the forests of America will be safe in the hands of American foresters.

SOME NEW AMERICAN LYTHRA.

BY J. A. NIEUWLAND.

Lythrum cordifolium nov. sp.

Planta glabra gracilis cum ramulis tenuibus permultis et foliis parvis ovatis crassiusculis omnibus magnitudinis aequalis circa 6-8 mm. longis et 2.5–4 mm. latis strictissime oppositis, apice acutis vel obtusiusculis, basi latissime cordatis vel rotundatis sessilibus, marginibus subaspere strigulosis; floribus perpaucis ad ramulorum apices oppositis, axillaribus subsessilibus, cum duobus bracteis linearibus sub hypanthio striato, 5 mm. longo. Calix breviter denticulatus vel fere edentatus, et sum appendicibus inter sepala longis recurvatis subulatis. Florum aliae partes ignotae.

Plant very slender glabrous with long slender branches, and numerous very small ovate cordate thickish leaves, about uniform in size and shape throughout, about 6-8 mm. long, 2.5–4 mm. wide strictly opposite, acute or obtusish at the apex and broadly cordate to rounded sessile at the base. Margins roughish strigulose. Flowers few aggregated near the ends of the slender branches axillary, opposite, subsessile with two small linear bracts below the hypanthium, which is ridged and about 5 mm. long. Calyx teeth very short, almost obliterated; intersepalar appendages or processes long, recurved, subulate. Other flower parts unknown as the specimen was in bud from which the description was made.

The specimen is rather young; the flowers not yet fully

developed. The vegetable characters are, however, so striking as to warrant segregation on these marks alone. The type is in the herbarium of the United States Department of Agriculture, collected by S. B. Buckley somewhere in N. Carolina, Georgia, or Florida. "Distrib. by the Shaw School of Botany." No more details are given on the label.

By vegetative characters alone the plant deserves to be distinct from any other Lythra to which it may be referred. The leaves are as strictly opposite and decussate as in *L. lineare* Linn., and yet as evident from their description not at all like those of typical *L. alatum* Linn. The slender separate twigs have the long scarcely branched appearance of the plant called by some *L. flagellare*, but the cordate broad leaves distinguish it from this. The calyx and hypanthium are of a totally different kind. The mode of branching is decidedly divaricate opposite, and more leafy. The hypanthium differs too in being ridged or even creased.

The plant differs from *L. lineare* Linn. in the shape of the leaves which are broader and shorter, the branches are tetragonal or even winged, but the habit about the same.

From *L. gracile* Bentham, a Mexican plant, its nearest ally in appearance of habit and branching it differs by having broader oval leaves shorter than the internodes. Though the branches are long and gracilient the flowers have a different calyx, rather more like *L. alatum* with long reflexed appendages than calyx segments or teeth. These in *L. gracile* Bentham are subequal. The hypanthium, deeply ridged in *L. cordifolium*, is only slightly striate or terete in *L. gracile*. The latter, moreover, is suffruticose.

Lythrum dacotanum nov. sp.

Planta glabra caule et ramis subteretibus aliquantulum alatis, foliis lanceolatis, sessilibus vel basi rotundatis vel subcordatis, acutis vel acuminatis, marginibus scabris, 2.5–4.5 cm. longis subtus pallescentibus facie superiore viridibus: foliis inflorescentiae permultis divaricatis vel reflexis, tenuioribus sibi propinque aggregatis, 1.5 cm. longis vel longioribus, flores axillares excedentibus: ramis paucis virgatis, elongatis. Flores magni circa 1 cm. longi, staminibus 6, longe exsertis, stylo incluso vel haud exserto etiam fructu facto; antheris suborbicularibus subnigris; ovario circa 2 mm. longo; stylo et stigmate circa 3 mm. et calice circa 6 mm. longo, subsessili, cum duabus bracteis

parvulis ad basim; petalis obovatis circa 5 mm. longis 3.5 mm. latis. Calyx triangulo-dentatus appendicibus longis, subulatis, reflexis, calicis dentes 3-plo excedentibus.

Plants glabrous with roundish stems which are slightly winged; leaves 2.5–4.5 cm. long, lanceolate acute or acuminate, sessile rounded or subcordate at the base, scabrous margined, rather thin, pale below and dark green on the surface. Leaves of the inflorescence very numerous large widely spreading or reflexed, closely aggregated 1.5 cm. or more long exceeding the axillary flowers. Branches several long wand-like. Flowers rather large about 1 cm. in length or slightly more. Stamens 6 long exserted, style included or barely exserted even in fruit. Ovary about 2 mm. long: style and stigma nearly 3 mm. long, calyx nearly 6 mm. long, hypanthium subsessile with two minute bracts near the base. Petals obovate nearly 5 cm. long, 3.5 broad, calyx teeth, broad triangular, processes long subulate spreading or reflexed about three times as long as the calyx teeth.

Type No. 240979 of the U. S. National Museum from South Dakota, collected near Sioux Falls in August 1892 by J. J. Thornber. Another specimen is numbered 516395, otherwise alike; both from the herbarium of Thomas A. Williams. So different does the plant appear from its nearest ally *L. alatum* Linn. in habit as to seem at first sight more like *L. Vulneraria* Linn. with which, however, it has no nearer relationship though intermediate perhaps.

Lythrum parvulum nov. sp.

Planta simplex vel minus ramosa circa 3 dm. alta vel minor e radice crasso plus minusve erecto ligneo, rhizomata lignosa emittens, caulibus pluribus 4-angulatis cum alis decurrentibus e basi foliorum stricte sessilium; foliis pallescentibus utraque facie, vel glaucis 5x9 mm. usque 7x18 mm. latis et longis ovalibus vel oblongo-linearibus, abrupte acutis vel obtusiusculis, basi stricte sessilibus, cordatis vel rotundatis vel infimis aliquando subcuneatis et obovatis, et in superioribus caulibus praecipue perparvas stipulas in fine alarum habentibus, foliis in inflorescentia linearibus minoribus, margine striguloso, plerumque basi cordatis vel rotundatis. Flores circa 1 cm. lati petalis obovatis colore earum *L. alati*, mucronatis calice circa 6 mm. longi cujus dentes breves obtusi membranosi, cum appendicibus brevibus, divaricatis, triangulatis, hypanthio cylindrico sub dentibus calicis angustato:

staminibus exsertis inaequalibus; stylo circa 7 mm. exserto: ovario subcylindrico circa 4 mm. longo.

Plant not much branched about 3 dm. high or smaller from a rather thick more or less upright woody root sending from the base of the stem rather thick woody rootstocks. Stems several to many and with the branches 4-angled and wings running down from each side of the insertion of the strictly sessile leaves. Foliage and especially the stems very pale. Leaves somewhat glaucous oval to oblong linear or linear abruptly acute or obtusish, base strictly sessile cordate to rounded, some of those on the lower part of the plant at times somewhat cuneate and obovate, and even higher on the stem with noticeable cuspidate stipular terminations of the wings of the stem at the leaf insertion. Leaves, thick about 5x9 mm. to 7x18 mm., the floral ones smaller mostly alternate and with cordate or rounded base and rough margins, the midrib of all very pale. Flowers about 1 cm. wide; petals obovate of the same color as those of *L. alatum* mucronate tipped; calyx about 6 mm. long its teeth obtuse somewhat membranous; appendages short triangular somewhat spreading calyx tube cylindrical apparently narrowed below the teeth: stamens exserted unequal. Style with hemispherical stigma exserted about 7 mm. Ovary subcylindric extending about 2-3 the height of the hypanthium. Flowers short-stalked with two minute oval pointed bractlets at the base of the hypanthium.

As type may be selected No. 442510 of the U. S. National Herbarium, i. e. S. M. Tracey's 8071 from Abilene, Texas, collected May 24, 1902. The plant is labeled *L. ovalifolium* but it differs from this with which it was long confounded by winged stem and cordate leaves absent in typical specimens of Gray's plant. No. 265839 of the U. S. National Herbarium collected at Ulysses, Kansas, by C. H. Thompson (his no. 34) may be referred here. The plant is marked *L. alatum* which it in no way resembles. No. 10 of G. C. Nealy collected June, 1892, at Corpus Christi, Texas, is another good example, but a rather small form scarcely branched at all except the upright branches from the creeping or prostrate stems or rhizomes.

Lythrum flagellare Shuttleworth ms.[1] also Koehne, Engler's

1 The name *L. flagellare* Shuttleworth, at least in as far as it is different from *L. ovalifolium* Engelm., was either never published or is a *nomen nudum*. When first used in print as above noted by Koehne it was used as a synonym

Bot. Jahrb. I., p. 321, (1881) as a synonym of *L.ovalifolium* Engelm.

Planta perennis erecta vel ascendens caulibus pertenuibus a rhizomate repente tenui, lignoso, assurgens 1-3 dm. alta, foliis crassis, rigidis, glaucis, ovatis ovalibus vel obovatis, *distincte sed breviter petiolatis*, cauli subtereti sine alis, simplici vel subsimplici (aliquando minus ramoso); foliis cum margine striguloso, basi rotundatis vel subcordatis, omnibus fere aequali magnitudine, divaricatis vel erectiusculis 5-13 mm. longis 3-6 mm. latis. Flores calice subcylindrico vel cylindrico-campanulato, subsessili minute ad basim bibracteato, pedunculo fructifero 1 mm. longo, dentibus calicis apice rotundatis mucronatis; appendicibus erectis vel divaricatis, lanceolatis, subulatis, dentes calicis duplo excedentibus: Flores quoque pauci axillares tantum 2-10, binis oppositis, in unoquoque cauli vel ramo elongato; petalis purpureis vel pallidis oblongis; staminibus subaequalibus exserta usque 2 mm., et in aliis plantis cum stylo aequemodo exserto et staminibus inclusis. Petioli, calix, et nodi purpurei sunt.

Plant, erect or ascending, perennial very slender 1–3 dm. high from slender woody repent rootstocks or runners. Stem subterete usually simple or but little branched purplish with scarcely any trace of wings or angles and only a minutely raised white line descending from both sides of the leaf insertions. Leaves thick rigid, roughish margined, ovate, oval, or sometimes obovate distinctly though short-petioled, rounded or subcordate at the base and obtuse at the apex, all on the same shoot nearly equal in size, spreading or slightly erect. 5–13 mm. long and 3–6 mm. wide. Calyx subcylindric gradually widened upward nearly sessile with two linear membranous bracts at the base, pedicel about 1 mm. long in fruit, bibracteolate at the middle. Calyx segments rounded mucronate appendages, lanceolate subulate twice as long. Petals pale purplish, oblong two-thirds as long as

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to the plant of Engelmann. The plant to which Shuttleworth applied the name in MS. is, however, quite a different plant from *L. ovalifolium*. Owing to this peculiar condition of things there may arise doubt as to the use of the name *L. flagellare* for Suttleworth's plant, when its first use was that of a synonym for *L. ovafolilium*. We prefer to keep Shuttleworth's inedited name at the same time establish the identity of the plants.

Should nomenclatorial quibblers consider *L. flagellare* inapplicable we suggest as a second choice *L. tenue* for the plant here for the first time described, as far as we know.

the calyx tube and rather narrow. Leaves glaucous, the petioles calyx and nodes of the stem purple glaucescent. Flowers few solitary in opposite axils in 1-5 pairs only. The stems then produce several flowerless nodes and branches above, the branches again producing few opposite solitary on their upper ends. Stamens subequal exserted about 2 mm. in short-styled plants, the styles equally exserted in plants with included stamens.

Plant readily distinguished from *L. ovalifolium* by its habit and woody stems, *L. ovalifolium* is an herb with the habit of *L. alatum*. Its leaves are different in shape the lower obovate or even suborbicular and all *thin and membranous*, the stems winged. *L. flagellare* somewhat shrubby at least below blooms with only a few flowers on the stems which soon elongate and branch. *L. ovalifolium* though at first simple later branches diffusely and blooms successively and indefinitely becoming about 3 dm. high. The calyx is shorter and comparatively wider. The shape and texture of the leaves distinguishes it at a glance from *L. parvulum*, though the habit of the two is more nearly similar.

Good examples of *L. flagellare* in the U. S. Herbarium are numbers 442240, S. M. Tacy's 7594 labelled *L. flagellare* Shuttlew. Brandentown, Fla., July 20, 1901. Also two other specimens from Florida collected in 1890 by J. H. Simpson in the Herbarium of the U. S. Dept. of Agriculture; also A. P. Garber's No. 21, labelled *L. Hyssopifolia* L. Sarasota June, 1878 (No. 249775 also in the same herbarium).

These two have been hitherto confounded under *L. ovalifolium*[2] Engelm, a very different plant from different region. Lindheimer's plant No. 609 "Fl Texana exsiccata" is typical *L. ovalifolium* as described by Gray as *L. alatum* var. *ovalifolium* in "Plantae Lindheimerianae." Another such typical specimen is A. A. Heller's collected in Texas, Kerrville; 1885 U. S. Herbarium No. 214035. No. 502167 U. S. Herbarium collected by Lindheimer in 1809 at Commanche Spring, New Braunfels, Tex. These two were carefully examined and compared with the original descriptions of publicaton and found to differ totally in material respects from *L. parvulum* as also from *L. flagellare*.

Department of Botany,
Univ. of Notre Dame, Ind.

2 Engelmann in A. Gray, Boston Jr. Nat. Hist. VI., p. 187, (1850).
3 p. 187. Walpers Ann., 2, p. 539.

MIGRATION OF OUR BIRDS IN THE SPRING OF 1913.

BY BROTHER ALPHONSUS, C. S. C.

It has been stated by some writers that the Bluebird is not our earliest spring migrant. My observations for nine years show that in this locality this species is usually the first to arrive in spring, my record for the present year being the earliest I have ever made for the species.

The dates of arrival for the Robin, Song Sparrow, Meadowlark, Killdeer, Bronzed Grackle are a week later than the usual time for these species to arrive. Cold weather and snow were the cause of the delay of these species.

The Golden-crowned Kinglet, Phoebe, Cowbird, Kingfisher, Field Sparrow, Mourning Dove and Redwinged Blackbird arrived on dates that are usual ones for these species to appear. Warm weather, following soon after the arrival of the Robin, was the reason that made these birds come a week or more earlier than they would have done if it was cold and stormy.

In April the weather continued warm for the season and the dates for nearly all the species that arrived in this month were regular. This year several species that usually arrive in May appeared in April. Such were the Baltimore Oriole, Yellow Warbler and Redstart.

In May the following species showed exactly the same dates as in 1912: Kingbird, 3; Crested Flycatcher, 6; Chestnuted-sided Warbler, 5. In the dates of the following for 1912, there was but one day's difference from 1913: Chimney Swift, 1; Orchard Oriole, 4; Black-throated Green Warbler, 3. The following showed eight days or more between the dates of the two years: Scarlet Tanager, Cedarbird, White-crowned Sparrow, Red-eyed Vireo, Red-breasted Nuthatch, Magnolia, Black-poll and Black burnian Warblers, Wood Pewee. The difference in days for the same years for the following is indicated by the number after the name of the species: Nashville Warbler, 3; Bay-breasted Warbler, 3; Canadian Warbler, 4. The Tennessee and Sycamore Warblers were not observed this spring.

Two species whose dates of migration are found in June are

the Purple Martin and Yellow-throated Vireo. The explanation I should offer for the lateness of the Yellowthroat is that this species is locally distributed and its appearance in some places is only occasional. But you may ask, how does that account for its absence as a migrant when most other species are readily found? I should answer that the species is not abundant anywhere near our locality and that the individuals which migrated in our vicinity went directly along their route to their summer homes.

As to the Purple Martin, I am sure that my date, June 1, is not correct for the species, for formerly the first Martins appeared here late in April. No suitable nesting places are any longer available for the birds at Notre Dame, which have all left the locality and now nest in the neighboring city of South Bend. But the dates given for these two species are interesting as showing when they were first seen by a daily observer of bird-life within a restricted territory.

The writer made his largest record of migrating birds this spring, and had he been more fortunate in his observation of the warbler family, the number would probably have exceeded a hundred migrants.

FEBRUARY.

15 Northern Shrike
19 Bluebird
24 Brown Creeper

MARCH.

9 Robin
11 Song Sparrow
12 Meadowlark
12 Killdeer
12 Bronzed Grackle
15 Herring Gull
15 Canada Goose
19 Golden-crowned Kinglet
19 Phoebe
20 Cowbird
22 Kingfisher
22 Field Sparrow
23 Mourning Dove
25 Red-winged Blackbird

APRIL

1 Flicker
1 Chickadee
2 Vesper Sparrow
3 Sapsucker
5 Fox Sparrow
6 Tree Sparrow departed
6 Towhee
8 Loggerhead Shrike
10 Golden-crowned Kinglet departed
11 Barn Swallow
12 Brown Thrasher

15 Chipping Sparrow
16 Ruby-crowned Kinglet
16 Chicken Hawk
18 Pine Warbler
18 Myrtle Warbler
19 Fox Sparrow departed
19 Hermit Thrush
20 Redstart
21 White-throated Sparrow
22 Tennessee Warbler
22 Yellow Palm Warbler
22 House Wren
22 Brown Creeper departed
23 Goldfinch
23 Red-breasted Nuthatch
23 Swamp Sparrow
24 Sapsucker departed
24 Spotted Sandpiper
26 Warbling Vireo
28 Short-billed Marsh Wren
28 Sparrow Hawk
29 Baltimore Oriole
30 Yellow Warbler
30 Snowbird departed

MAY.

1 Whip-poor-will
1 Screech Owl
2 Chimney Swift
2 Black-throated Green Warbler
3 Catbird
3 Kingbird
3 Orchard Oriole
3 Ruby-crowned Knight departed
4 Cardinal
5 Bobolink
5 Chestnut-sided Warbler
5 Water Thrush
5 Rose-breasted Grosbeak
6 Prairie Warbler
6 Blue Gray Gnatcatcher
6 Nashville Warbler
6 Crested Flycatcher
7 Yellow Rail
7 White-crowned Sparrow
9 Black and White Warbler
9 Alder Flycatcher
9 Red-eyed Vireo
10 Tree Swallow
10 Blue-headed Vireo
11 Blackhurmian Warbler
12 Least Flycatcher
13 Scarlet Tanager
14 Wood Pewee
15 Myrtle Warbler departed
16 Cape May Warbler
16 Red-breasted Nuthatch
16 Bay-breasted Warbler
16 White-crowned Sparrow departed
16 Magnolia Warbler
16 Nighthawk
16 Yellow-billed Cuckoo
16 Cedarbird
17 Black poll Warbler
17 Yellow Palm Warbler departed
17 Red-breasted Nuthatch departed
21 White-throated Sparrow departed
21 Black-billed Cuckoo
23 Canadian Warbler.
23 Kentucky Warbler
23 Bay-breasted Warbler departed

24 Black and White Warbler departed
24 Black-throated Green Warbler departed
25 Magnolia Warblre departed
25 Chestnut-sided Warbler departed
25 Canadian Warbler departed
27 Yellow-breasted Chat
27 Yellow-bellied Flycatcher
28 Hummingbird
28 Carolina Wren
29 Water Thrush departed
29 Black-poll Warbler departed
29 Redstart departed
30 Blue-headed Vireo departed
30 Least Flycatcher departed
30 Hermit Thrush departed
30 Maryland Yellowthroat

JUNE.

1 Purple Martin
7 Bobwhite
18 Yellow-throated Vireo

Total number of migrants seen, 92.

NOTES ON OUR LOCAL PLANTS.—VI.

BY J. A. NIEUWLAND.

ORDER 24. CARYOPHYLLINEAE.

Bartling, Ord. Nat. p. 295 (1830) Bart. and Wend., II., p. 137 (1824-5.)

Centrospermae Engler in Engler and Prantl, Pflanzanfam. Nachtr. p. 346 (1897), Engler, Fuhrer Bot. Gart. Breslau, p. 36 (1836), *Chenopodiales* Britton, Manual, p. 367 (1901). *Caryophylleae* Lond. Hort. Britt. Cat. p. 501 (1830) (?).

Family 53. **SALSOLACEAE** Linnaeus, Classes Plantar. (1738).

Holeraceae Linnaeus, Phil. Bot. p. 33 (1751), also (1755). *Oleraceae* Zinn, Cat. Hort Gott., p. 25 (1757) in part. *Chenopodeae* Vent. Tabl. II, p. 253 1799), *Salsolaceae* Moq. in DC. Prod. XIII, 2, p. 41 (1849), *Chenopodiaceae* Less. in Linnaea IX, p. 196 (1834), *Cheiropodiaceae* Daubeny, Lect. Rom. Husbandry, p. 314 (1857).

BOTRYS Dioscorides III; 130, Pliny Nat. Hist. XXVII:8, 31, also Bauhin, Pinax, p. 138 (1623), *Chenopodium* Tabernaemon-

tanus ex C. Bauhin Pinax, p. 119 (1623) *Chenopodium* Tour., Els. p. 406 (1694) I. R. H. p. 506 (1700), *Blitum* and *Atriplex* sps. of the older authors, *Chenopodium* Linnaeus Syst. (1735), Gen. p. 67 (1737), p. 103 (1754), *Vulvaria* Bubani Fl. Pyr. I, 174 (1897), *Vulvaria* Dalchamps, Hist. p. 543 (1587), *Botrydium* Spach, Hist. l. c. p. 295, and *Chenopodium* Spach l. c. p. 300. Not *Botrydium* Wallroth (1815).

Botrys aromatica (Spach).

Botrydium aromaticum Spach, l. c. *Chenopodium Botrys* Linn. Sp. Pl., p. 219 (1753), *Vulvaria Botrys* (Linn.) Bubani l. c. p. 177.

Lake Maxinkuckee (H. W. Clarke), Lake Co. (Hill), Clarke, Ind. (Umbach), Nos. 11332, Notre Dame, Ind., 11336, Sagunay, Laporte Co.

Botrys ambrosioides (C. Bauhin).

Chenopodium ambrosioides (C. Bauhin) Linn., Sp. Pl., p. 214.

Botrys ambrosioides mexiocana C. Bauhin, Pinax, p. 138, (1623), *Ambrina ambrosioides*, Spach, Hist. Nat. Veg., V. p. 297 (1836). *Vulvaria ambrosioides* Bubani, l. c. p. 178.

Botrys anthelmintica (Linn.).

Chenopodium anthelminticum Linn., Sp. Pl., p. 220 (1753), *Chenopodium ambrosioides* var. *anthelminticum* A. Gray, Man. Ed. 5, p. 408 (1867), *Ambrina anthelmintica* Spach, l. c. p. 298.

Millers, Ind.

Botrys glauca (Linn.)

Chenopodium glaucum Linn., Sp. Pl., p. 220 (1753), *Blitum glaucum* Koch, Syn. Fl. Germ., p. 608 (1837).

Millers (Umbach).

Botrys hybrida (Linn.).

Chenopodium hybridum Linn., Sp. Pl., p. 219 (1753).

Lake Maxinkuckee, (H. W. Clarke), Lake Co. (Deam), Nos. 11713, 10335, 10418 Notre Dame, Ind.

Botry leptophylla (Moq.).

Chenopodium leptophyllum (Moq.) Nutt., in DC. Prod. XIII, 2, p. 71 (1849), *Chenopqdium album* var. *leptophyllum* Moq. l. d.

Nos. 9706 Dune Park, Ind., 10237 Mineral Springs, Porter Co. I have found the plant as far east as Hudson Lake, Laporte Co. It is spreading wherever there is sandy soil not far from Lake Michigan. Its presence at Hudson Lake is accounted for doubtless because of the sandy soil of this rather large inlake.

Botrys bosciana (Moq.)

Chenopodium boscianum Moq., Enum. Chen. p. 21 (1840). No. 11528 Notre Dame, Ind.

Botrys alba (Linn.).

Chenopodium album Linn., Sp. Pl., p. 219 (1753).

Lake Co. (Deam), Laporte Co. (Deam), Nos. 1986 Notre Dame, Ind. (Powers), 10419 Notre Dame, Ind., 11351 Hudson Lake.

Botrys Berlandieri (Moq.)

Chenopodium Berlandieri Moq. l. c. p. 23.

No. 11350 Hudson Lake, Ind. The leaves of this specimen are nearly all decussate.

BLITUM Hippocrates, Affect., 526, Theophrastus, Hist. Pl., 1:9, Dioscorides, II:143, Pliny, XX:93,[1] Galen, II:1, etc.

Blitum Tragus, Camerarius, Dodonaeus, Matthioli, Lobelius, Caesalpinus, Gerarde, Anguillara, Tabernaemontanus, Brunfels, erc. *Blitum* Tour., Els., P. 407 (1694), I. R. H., p. 507 (1700), *Polysporon* Linnaeus, Syst. (1735), Gen., p. 6 (1754), Gen., p. 20 (1737), *Chenopodio-Morus* Boerhaave, Ind. Alt. Pl. p. 91 (1727), *Morocarpus* Ruppius, Fl. Jen., p. 271 (1727), *Polysporon* Lobelius Hist., p. 128 also Anguillara.

Blitum capitatum Linn., Sp. Pl., p. 4, (1753).

Chenopodium capitatum Aschers., Fl. Brand., p. 572 (1864), *Morocarpus major* Ruppius, l. c.

Nos. 11248, 11253 Notre Dame, Ind.

ATRIPLEX Hippocrates, Theophrastus, VII:1, Pliny XX:20, Columella III:11, X:377, Dioscorides II:145.

Atriplex Tragus, Dodonaeus, Lobelius, Caesalpinus, Fuchs, Castor Durante, Anguillara, Matthioli, Ruellius, Marcellus Vergilius, Gesner, V. Cordus, Lonicer, Camerarius, Thalius, etc., *Atriplex* Tour., Els., p. 405 (1694), I. R. H., p. 505 (1700), Linn., Syst., (1735), Gen., p. 317 (1737), Gen., p. 472 (1754).

Atriplex hastata Linn., Sp. Pl., p. 1053 (1753).

Atriplex patula Linn., Sp. Pl., p. 1053, l. c. *Atriplex littoralis* Linn., l. c. p. 1054, *Atriplex patulum* var. *hastatum* A. Gray, Man., Ed. 5, p. 405 (1867).

Lake Maxinkuckee (H. W. Clarke), Clarke, Ind. (Umbach), Hudson Lake, Laporte Co.

CYCLOLOMA Moq., Enum. Chen., p. 17 (1840).

[1] Daubeny thinks that the Bliton of Dioscorides is *Amaranthus Blitum* Lect., p. 315, Fée, Panckouck, Bubani to the contrary.

Cycloloma atriplicifolia (Sprengel) Coulter, Mem. Torr. Cl. V, p. 143 (1894).

Kochia atriplicifolia Sprengel, Nachtr. Fl. Hal. 2, p. 35 (1801) Cycloloma platyphyllum Moq., l. c.

Lake Co. (Deam), Lake Maxinkuckee (H. W. Clarke), Laporte Co. (Deam), Dune Park (Umbach), Lake Maxinkuckee (H. W. Clarke), Laporte Co. (Deam), Dune Park (Umbach), Nos. 9184 Millers, also 9183 from the same place with perfectly green flowers, 9696 Dune Park. I have found it in Laporte, Porter and Berrien Cos.

CORISPERMUM Jussieu, Act., p. 244 (1712).

Corispermum Linn., Syst. (1735), Gen., p. 1 (1737), Dillenius Gen., p. 160 (1719), *Corispermum* Linn., Gen. p. 5 (1754), *Rhagrostis* Buxbaum, Cent., III, p. 30 (1729).

Corispermum hyssopifolium Jussieu, l. c. also Linnaeus and Dillenius. l. c.

Lake Co. (Deam) (Hill), Porter Co. (Cowles), Millers (Umbach), South Haven (L. H. Bailey), Nos. 9540, 1925b, Millers. Found also in Berrien, Laporte, Lake and Porter Cos.

Corispermum hyssopifolium var. **nitidum** Kit., I have found at Millers, Ind., (No. 1925 U. N. D. Herb.)

SALSOLA Caesalpinus [Herb. Tornab., 205:571 (1563)] De Plantis, p. 170 (1583).

Kali C. Bauhin, Pinax, p. 289 (1623), also Dodonaeus, Lobelius, Dalechamps, Camerarius, Matthioli, etc. Perhaps an older name than *Salsola* both of barbarous origin and form, being the name of a chemical and therefore objectional. *Anthylloides* Thalius Sylv. Herc., p. 16 (1588), *Alcali* Gesner Hort. Germ. (1561), [?(Tragus Dioscorides IV:51, Pliny XXI:13, 116)? See Bubani Fl. Pyr. I, p. 162-164.] *Kali* Tour. Els. p. 213 (1694), I. R. H. p. 237 (1700), *Salsola* Linn, Syst. (1735), Gen. p. 67 (1737), p. 104 (1754)

Salsola pestifer A. Nelson, Rocky Mt. Bot., P. 169, (1909).

Lake Co. (Deam), Whiting, Ind., (Moffatt), Laporte Co. (Deam). I have found it in Berrien, Laporte, Lake and St. Joseph Cos. On sandy fields west of South Bend it is very abundant and a great niusance to farmers. I have seen large plants over a foot in diameter after being uprooted blown about the streets of the city by the prevailing west winds of this region. This occurs almost annually of late years especially in winter and early spring when

the plants are most easily loosened from the soil. The seed is thus scattered broadcast.

Family 54. **AMARANTHOIDEAE** Vent., Tabl. II, p. 264, (1799).

Amarantaceae, Jussieu, Ann. Mus. Paris, II, p. 131 (1803). *GALLIARIA* Bubani, Fl. Pyr., I, p. 184 (1897).

Amaranthus Linn, Syst., (1735), Gen., p. 286 (1737), p. 427 (1754), *Amaranthus* Tour., Els., p. 201 (1694), I. R. H., p. 234 (1700), not *Amarantus* Pliny XXI:8, 23, and of the ancients which is *Celosia* Linn.

Galliaria retroflexa (Linn.)

Amaranthus retroflexus Linn. Sp. Pl., p. 991 (1753), *Galliaria scabra* Bubani l. c. p. 187.

Millers (Umbach), Lake Maxinkuckee (H. W. Clarke), No. 11709 Studebaker's Woods S. of South Bend, Ind. Found in all of the counties within the region.

Galliaria spinosa (Linn.)

Amaranthus spinosus Linn. l. c.

Millers (Umbach), found also at South Bend, Ind.

Galliaria hybrida (Linn.).

Amaranthus hydbidus Linn. l. c. p. 990.

Lake Maxinkuckee (H. W. Clarke), Millers (Umbach). Found also in Laporte, Berrien, and St. Joseph Cos.

Galliaria blitoides (S. Watson).

Amaranthus blitoides S. Watson, Proc. Am. Acad. XII, p. 273 (1877).

Lake Maxinkuckee (H. W. Clarke), South Haven, Van Buren Co. (L. H. Bailey), found also in Berrien, Porter, Laporte, St. Joseph Cos.

Galliaria graecizans (Linn.).

Amaranthus graecizans Linn., l. c. p. 990. *Amaranthus albus* Linn. Sp. Pl., p. 1404 (1763), *Galliaria albida* Bubani l. c. p. 185.

Lake Maxinkuckee (H. W. Clarke), Lake Co. (Deam), Nos. 10423, Hudson Lake, 11496, 11710, S. of South Bend.

AMARANTHUS Pliny XXI:8.

Amaranthus Dodonaeus Hist. Pl. p. 125 (1557), Ed. C. Clusius also Castor Durante, Caesalpinus, Gesner, Lobelius, Tabernaemontanus, etc. Not *Amaranthus* Linnaeus, *Celosia* Linnaeus, Gen. p. 34 (1737), p. 96 (1754), *Psittacus* Heister.

Amaranthus purpureus Dodonaeus, l. c. (1557).

Amaranthus cristatus Camerarius Epit. 792, also Noronha (1790). *Celosia cristata* Linn., Sp. Pl., p. 205 (1753).

I have seen it as an escape from gardens in the west end of South Bend where it is extensively cultivated by foreigners.

ACNIDA Mitchell, ex Linn., Act. Ups., "1741" (1746) Mitchell, Act. Ac. Leop. Carol., VIII and App. "1741" (1748). p. 28 also (1769) *Acnida* Linn., Gen., p. 453 (1754), Linn., Am. Acad. III, p. 18 (1756). For a discussion of the priority see Kuntze, O., Rev. Gen. I, p. 519 (1891).

Acnida tamariscina (Nutt.) Wood, Bot. and Flor., p. 289, (1873). *Amaranthus tamarascina* Nutt., Trans. Am. Phil? Soc. II, 5, 165 (1833–37) Clarke, Ind. (Umbach), Lake Co. (Deam).

Acnida tuberculata Moq., DC., Prod., XIII, 2, p. 278, (1849). Nos. 673, 11484, Notre Dame, Ind.

Family 55. **PHYTOLACCEAE** R. Brown, Tuskey, Congo, p. 453 (1818), also Bartling Ord. Nat., p. 299 (1830).

Phytolaccaceae Lindley, Nat. Syst., Ed. 2, p. 210 (1836).

PHYTOLACCA Tour., Els., p. 248 (1694), I. R. H., p. 299 (1700).

Phytolacca Dillenius, Hort. Elth., p. 218 (1732), Linn., Syst., (1735), Gen., p. 136 (1737), Hort. Cliff., p. 177 (1737), Gen., p. 200 (1754).

Phytolacca americana Tour., Els., l. c. (1694).

Phytolacca vulgaris Dillen., l. c. *Phytolacca decandra* Linn., Sp. Pl., p. 63 (1753), *Phytolacca americana* Linn., Sp. Pl., l. c. p. 441.

Lake Maxinkuckee (H. W. Clarke) (Deam), Laporte Co. (Deam), I have found the plant in all the counties.

Family 56. **CORRIGIOLACEAE** Reichenb., Moessl. Hand., I. l. p. 51, (1827).

Paronychieae Bartling, Ord. Nat., p. 300 (1830), also Lond. Hort. Brit. p. 517 (1830), *Paronychiaceae* Daubeny, Lect. Rom. Husbandry, p. 308 (1857).

ANYCHIA Michx., Fl. Bor. Am., I, p. 112 (1803).

Anychia canadensis (Linn.) B. S. P., Prel. Cat. N. Y., (1888).

Guerezia canadensis Linn., Sp. Pl., p. 90 (1753), *Queria canadensis* Britton, III. Fl. N. Am., II, p. 40 (1897), *Queria capillacea*

Nutt., Gen., I. p. 159 (1818), *Anychia capillacea* DC., Prod., III, p. 369 (1828), *Anychia dichotoma* Mich., l. c., p. 113.

Lake Maxinkuckee (H. W. Clarke), No. Notre Dame, Ind., 11493, 11257, S. of South Bend, Ind.

SCLERANTHUS Linn., Syst., (1735) [Nomen Tantum] Gen., p. 131 (1737), Hort. Cliff., p. 166 (1737).

Knawel Dodonaeus, Dillenius, Boerhaave, Ray, Ruppius, (Nomen barbarum) *Scleranthus* Linn., Gen., p. 190 (1754). *Knavelia* Heister, Syst., p. 11, (1748) *Knautia* Fabricius, Heist., Fl. Helm., p. 358 (1759)? *Knavel* Adans., Fam., II., p. 506 (1763).

Scleranthus annuus Linn., Sp. Pl., p. 406 (1753).

Knavel annuum Scopoli, Fl. Carn. Ed., II, l. p. 298 (1772).

Nos. 9315 SW. of South Bend, Ind., near Lost Lake, 11735 Warwick State boundary, 9116, 9103, 2007, 6063, N. of Notre Dame, Ind., at Webster's station. Has become a weed at the last place.

Family 56. **NYCTAGINEAE** Vent., Tabl. II, p. 271 (1799).

Nyctaginaceae Lindley, Nat. Syst., Ed. 2, p. 213 (1836).

ALLIONIA Loefling, Linn., Syst. Ed., 10 (1759).

Oxybaphus L'Her., Willd., Sp. Pl., I, p. 185 (1797).

Alliona nyctaginea Michx., Fl. Bor. Am., I, p. 100 (1803).

Oxybaphus nyctagineus Sweet, Hort. Brit., p. 429 (1830).

No. 9350 N. of Notre Dame, Ind., on the M. C. R. R. Very common along railroads especially the Lake Shore R. R. west of South Bend.

ADMIRABILIS Clusius, Pannon., p. 395 (1583).

Jalap Tour., Els. p. 105 (1694), *Jalapa* Tour., I. R. R., p. 129 (1700), *Mirabilis* (Riv.) Linn., Syst., (1735), Gen., p. 49 (1737), p. 82 (1754), *Nyctage* Royen, Lugd., p. 417 (1740).

Admirabilis peruana Clusius l. c. also Hist. Rar. Pl. (1601).

Mirabilia peruviana Gerard, Herb., (1597). *Mirabilis peruviana* Ray, Hist., p. 398 (1668) *Mirabile peruvianum* Morison, Hist, III, p. 598. *Miribilis Jalapa* Linn., Sp. Pl., p. 177 (1753).

Plants were found near old dump piles south of the city of South Bend. That it may escape seems possible from the fact that the plant sows itself readily and regularly at Notre Dame in gardens where it was watched for the last five years.

Family 57. **AIZOACEAE** Br., Aschers., Fl. Brand., p. 60, (1864).

MOLLUGO Linn., Gen., p. 336 (1737), Hort. Cliff., p. 28 (1737), p. 39 (1754).

Mollugo verticillata Linn., Sp. Pl., p. 89, (1753).

Lake Maxinkuckee (H. W. Clarke), Clarke, Ind., (Umbach), Lake Co. (Hill), Laporte Co., (Deam), No. 1975 Notre Dame, Ind., (Powers). I have found it in every county in the region.

Family 58. **PORTULACEAE** Jussieu, Gen., p. 312 (1789)

Portulaccaceae Reichenb., Consp., p. 161 (1828).

TALINUM Adans., Fam. Pl. II, p. 245 (1763).

Talinum teretifolium Pursh, Fl. Am. Sept., p. 365, (1818).

Millers, Tolleston, Pine, Gibsons, Lake Co. (Higdon and Raddin). Lake Co. (Hill).

CLAYTONIA Gronovius, Linn., Gen. Pl., p. 339 (1737).

Claytonia Gronovius, Fl. Virg. p. (1739), Linn., Gen., p. 97 (1754).

Claytonia virginica Linn., Sp. Pl., p. 204 (1753).

Lake Maxinkuckee (H. W. Clarke), Mineral Springs (Deam), Laporte Co. (Deam) Nos. 2016 Notre Dame (Powers), 3411, 2492, Notre Dame, 402 Websters. I have found it in all the counties.

PORTULACCA Plin', XX:20.

Andrachne Theophrastus, Caus. Pl., I:10, 4, Hist., I:8, 15, 4, Dioscorides II:150, *Portulacca* Brunfels, Gerarde, Matthioli, Lobelius, Castor Durante, Tabernaemontanus, Turner, Cordus, Lonicer, Anguillara, Camerarius, Dodonaeus, Gesner, Marcellus Vergilius, Caesalpinus, Tragus, Fuchs, etc., *Portulacca* Tour., Els., p. 203 (1694), I. R. H., p. 236 (1700), Linn., Syst., (1735), Gen., p. 122 (1737), p. 204 (1754).

Portulacca sylvestris Fuchs Hist. Stirp., p. 113 (1542), p. 42, (1546), p. 63 (1549) also *Portulacca sylvestris* Tragus, Matthioli, Anguillara, Dodonaeus, Camerarius, etc., *Portulacca oleracea* var. B. Linn., Sp. Pl., p. 445 (1753), *Portulacca arvensis* Tabernaemon-Anguillara, Dodonaeus, Camerarius, etc., *Portulacca oleracea* var. *β* Linn., Sp. Pl., p. 445 (1753), *Portulacca arvensis* Tabernaemontanus *Portulacca minor* Gesner, also Camerarius, Hort. Med. p. 131 (1588).

Lake Maxinkuckee (H. W. Clarke). I have found the plant in all the counties of the region.

Portulacca grandiflora Hooker, Bot. Mag., Pl. 2885, (1829). I have fouud it as an escape from gardens at Notre Dame, Ind.

Family 59. **ALSINEAE** Bartling, Ord. Nat. p. 304 (1830).

Alsinoideae A. Br., Aschers., Fl. Brand., I, p. 60 (1864). *Alsineaceae* Bubani, Fl. Pyr., III, p. 22 (1901).

ALSINE Dioscorides, IV:75, Pliny, XXV:11.

Alsine Matthioli, Anguillara, Lacuna, Lonicer, Lobellius, Castor Durante, Fuchs, Dodonaeus, Tabernaemontanus, Gerarde, Thalius, Camerarius, Gesner, etc., etc., *Alsine* Tour., Els., p. 208, 1694, I. R. H., p. 242 (1700) *Alsine* Linn., Syst., (1735), Gen., p. 133 (1337), [*Alsine* and *Stellaria* Gen., p. 132 and 193 (1754)].

Alsine media Fuchs Hist. Stirp., p. 10b (1546).

Alsine media Dodonaeus, Hist. Pl., Ed. C. Clusius, p. 40 (1557), Camerarius Hort. Med. p. 11 (1588), C. Bauhin Pinax, p. 250 (1623), Tour., Els., p. 205 (1694), I. R. H., p. 242 (1700), *Alsine minor* Dodonaeus Pempt., p. 29 (1583), also Thalius, Sylv. Herc., p. 11 (1588), *Hippia minor* Dodonaeus Tr. Pr. Stirp. Hist., p. 150 (1553).

Lake Maxinkuckee (H. W. Clarke) 2057 Notre Dame (Powers). The plant is found throughout the whole region. It blooms the whole year round, a few sunny days in the middle of winter being sufficient to bring out the flowers.

Alsine graminea Linn., and Hesselgren, Pan Suecus in Am. Acad. I, p. 248 (1751).

Stellaria graminea Linn., Sp. Pl., p. 412 (1753), *Alsine graminea* Britton, Mem. Torr. Cl. V, p. 150 (1894).

Lake Co. (Deam), Michigan City, Laporte Co., C. D. Mell.

Alsine longifolia (Muhl.) Britton, Mem. Torr. Cl., V, p. 150 (1894).

Stellaria longifolia Muhl., Willd., Enum. Hort. Berol. pp. 479 (1809).

Clarke, Ind., (Umbach. Nos. 36, 896 3433, Notre Dame, Ind. The latter found by Powers, 578 Terre Coupée (St. Joseph Co.), 11073 Benton Harbor, (Berrien Co.).

Alsine longipes (Goldie) Coville, Cotn. Nat. Nerb. IV, p. 70 (1894).

Stellaria longipes Goldie, Edinb. Phil. Jr. VI, p. 327 (1822). St. Joseph Co. (Rothert), No. 2058, Notre Dame, (Powers).

CERASTIUM Dillenius, Cat. Pl. Giss., p. 41, etc. (1718).

Cerastium Linn., (1735), Gen., p. 134 (1737), p. 199 (1754), Hort Cliff., p. 147 (1737), *Myosotis* Tour., Els., p. 210 (1694), I. R. H., p. 244 (1700), not *Myosotis* of the ancients.

Cerastium viscosum Linn., and Hesselgren, Pan Suecus, Am. Acad., II, p. 248 (1752), also Linn., Sp. Pl., p. 437 (1753).

Benton Harbor, Mich.

Cerastium vulgatum Linn., Sp. Pl., p. 627 (1762).

Lake Maxinkuckee (H. W. Clarke), Laporte Co. (Deam).

(To be continued.)

SOME COMMON BIRDS.

BY VICTOR CARPENTER.

Red-Winged Blackbird.

Agelaius phoeniceus

Blackbird Family.

Syn. Swamp blackbird.

Length. 9.50 inches.

Color. Male, velvet black, greenish tint; shoulders of crimson. Female, brownish above; beneath white streaked with dirty brown.

Song. Varied and hard to describe; common note, "con-curr-ee"; mingling of gutteral creaking utterances.

Nest. Generally in low bushes; well made from reeds and lined with grasses and sedges.

Eggs. Light blue blotched or scrawled with black or dark purple; very varying.

Habitat. U. S. from coast to coast.

Specific habitat. Marshes and low ground.

Migration. March 15 to last of October.

Brown Thrasher.

Harporhyncus rufus

Thrasher Family.

Syn. Brown thrush.

Length. 11.40 inches.

Color. Upper parts reddish brown; under parts white and spotted with brown; eyes yellow.

Song. Clear and well defined; can be heard over a third of a mile; very beautiful.

Nest. Placed on ground or a little above it; generally in hedges.

Eggs. Bluish white; thickly speckled with minute specks of reddish or cinnamon brown.

Habitat. The central states;

Sepcific habitat. Brush or hedge patches.

Migration. Middle of April till October.

Blue Jay.

Cyanocitta cristata.

Crow Family.

Syn. Jay bird.

Length. 11.50 inches.

Color. Above, light purplish blue; wings and tail feathers bright blue; tail banded with black, tipped with white; light purplish blue on throat; a crescent shaped blotch of black on breast and half around neck. Female, much duller.

Song. No real song; good mimic of songs and notes of other birds. Bell-like note; many harsh notes; a loud hawk-note.

Nest. Rude, about twenty feet from ground; composed of twigs, etc., lined with roots.

Eggs. Five in number; light olive green, marked with spots of brown.

Habitat. Eastern N. America to Missouri valley.

Specific habitat. Oakgroves in settled places.

Migration. No regular migration.

Food. Tent caterpillars, other worms and insects in summer; in winter acorns and beech mast.

Barn Swallow.

Chelidon erythrogaster.

Length. 7 inches.

Color. Upper parts and sides of breast steel blue; throat chestnut; under parts paler; tail marked with white.

Song. Poor efforts, but composed of happy twittering.

Nest. Placed on a beam in an out building; made of mud and grasses lines with feathers.

Eggs. Six; white, with many spots.

Habitat. Central and eastern states.

Migration. April 15 to September 15.

Food. Insects taken on the wing; little if any vegetable food.

BLUE BIRD.
Sialia sialis.

Thrush Family.

Length. 7 inches.

Color. Upper parts bright blue; under parts cinnamon brown.

Song. Low earnest warble, soft and agreeable; song ceases before departure in fall.

Nest. Made in hollow tree or nesting box, of fine grasses, etc.

Eggs. Five in number. Bluish white color.

Habitat. Eastern U. S. west to Rockies.

Migration. First of March to last of October.

CATBIRD.
Galeoscoptes carolinensis

Thrasher Family.

Length. 8.50 inches.

Color. Slate; cap and tail black.

Song. Quaint attractive melody; good mimic.

Nest. In low bushes or briars in retired spots; composed of leaves, dry bark, fine roots and stems, lined with fine grasses.

Hsbitat. U. S. west to Rockies, north to Canada, south to Panama.

Specific Habitat. Low growth, as briars, vines, etc.

Migration. Last of April to October.

CEDAR WAXING.
Ampelis cedrorum.

Chatterer Family.

Length. 7.25 inches.

Syn. Cedar bird.

Color. Grayish brown; belly yellowish; end of tail yellow; secondaries sometimes red; black stripe through face.

Song. Few notes.

Nest. In low bush or tree three to twenty feet high; large and bulky but strong; coarse framework lined with leaves and soft root fibres.

Eggs. Five or six; color, light slate to stone, tinged with olive; blotched with dark purplish brown; length about 75. inch.

Habitat. All U. S. to Canada.

Food. Cedar berries, cherries, wild berries, insects, canker worms.

CARDINAL.

Cardinalis virginianus.

Finch Family.

Syn. Cardinal bird; redbird.

Length. 8 inches.

Color. About base of bill black; rest of plumage bright red; bill red.

Song. A clear whistle.

Nest. Four feet from ground in thick bushes; usually near running water; loose, composed of dry leaves, twigs, grape vines,etc.

Eggs. Three or four; oblong oval; white, very thickly marked with ashy brown; vary greatly in size.

Habitat. Southern states; rare farther north than Central Indiana.

CROW.

Corvus americanus.

Crow Family.

Length. 19.30 inches.

Color. Jet black; glossy.

Nest. In tall trees; formed of very coarse sticks, bark, etc.; no lining.

Eggs. Vary greatly in color; common, light green scattered with blothches of dark brown, purplish cast; 1.50 inches long.

Habitat. U. S. from Atlantic to Pacific.

Food. Grasshoppers, beetles, cut worms, etc.; corn to a small extent.

MOURNING DOVE.

Zonaidura macroura.

Pigeon Family.

Syn. Carolina dove.

Length. 12 inches.

Color. Upper parts olive brown; breast with a pinkish tinge; belly buff; tail tipped with white.

Song. None. A sad note only.

Nest. Platform shaped; very rude; of twigs, etc. on lower branch of a tree.

Eggs. Two, white; nearly equal at both ends, about 1.25 inches long.

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